HBSE-VLB / NBSE-VLB

Turbine bypass valves for boiler applications

Engineering GREAT Solutions
The HBSE/NBSE-VLB is an angle-style steam conditioning valve, primarily used for startup bypass systems in coal-fired power plants. HBSE is used for high pressure steam turbine bypass; whereas NBSE is used for low pressure bypass. They allow controlled startup and shutdown of different loops in the power plant with minimum heat losses. They handle abnormal conditions such as rejection, turbine, pump or fan trips, in order to return the system to normal running with minimum delay.

Key features
> Multi-stage pressure reduction with single-stage controllability
> Spray water atomizing nozzles
> Noise reduction

Benefits
> High rangeability
  The HBSE/NBSE features perforations in the valve plug which allows for finer control at low steam flow rates where these holes are the only conduit passing steam through the valve. This results in the modified linear valve characteristic, and increases the valves rangeability.

> Spray water atomizing nozzles
  OP spray nozzles are installed in the outlet of the valve and handle the injection of spray water into the steam. The nozzle features a spring which extends as the pressure in the nozzle holder increases. Water is rotated around the nozzle plug thanks to the special arrangement of the water channels. Stem and seat are designed to create maximum water velocity at the nozzle edge point, which improves water atomization.

> Pressure seal bonnet
  The pressure seal bonnet provides a tight seal in the valve neck while allowing easy access during maintenance.

> High temperature coating
  The valves are available with chrome carbide coating with HVOF and C21 high temperature coating applied to the internal sliding surfaces, making them suitable for high temperature service.

> Improved atomization
  As an option, the valve can be fitted with an extender. This allows the diameter of the steam outlet to be smaller than the diameter of the connecting steam pipe. A smaller outlet diameter increases steam velocities close to the spray nozzles. This improves the evaporation of the spray water as well as rangeability.
Specifications

Valve type
HBSE-VLB / NBSE-VLB

Selection
Use IMI CCI PowerSiz sizing program

Pressure class
Up to ANSI-4500 (higher ratings may be achieved on request)

Actuator type
Pneumatic, hydraulic, electromechanical

Leakage class
ANSI class V for valves with BT-plug.

Regulatory standards
PED, ASME, ISO 9001/14001/18001

Application example

A Boiler
B Main steam line
C Hot reheat
D Cold reheat
E Feedwater/condensate
F HBSE-VLB Steam conditioning valve
G NBSE-VLB Steam conditioning valve with dump tube
H HP Steam turbine
I LP Steam turbine
J Condenser
K Feedwater tank
L Feedwater pump

Full valve selection available on our website
www.imi-critical.com